

**REMARKS**

Claims 1-16 remain in the present application.

Claims 1-16 are currently rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-41 of U.S. Patent No. 7,029,747. In response thereto, attached is an executed Terminal Disclaimer. Without commenting as to the merits of any distinctions between the claims of the '747 patent and currently pending claims 1-16, it is respectfully submitted that submission of the attached Terminal Disclaimer is sufficient to obviate the present rejection.

Claims 1-3, 9-14 and 16 are currently rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Miller et al. (U.S. 5,876,266). Claim 1 is directed, in part, to a polishing pad having “a polishing layer composed of a polymeric matrix and **liquid microelements** embedded in the polymeric matrix, wherein open pores defined by the embedded **liquid microelements** are distributed across the surface of the polishing layer.”

It is the Examiner’s position that Miller discloses a polishing pad comprising a polishing layer composed of a polymeric matrix and liquid microelements embedded in the polymeric matrix citing specifically to column 9, lines 20-25. However, it is respectfully submitted that Miller does not teach liquid microelements as that term is used in claim 1 and defined by the specification. In the '266 patent, a polishing slurry or agent is incorporated within a micro-capsule or micro-capsules.

The micro-capsules taught in Miller et al. are distinguishable from the liquid microelements recited in claim 1 and as described in the specification of the pending application. As explained on pages 7-9 of the present application, the embedded liquid microelements are formed using a liquid material, which is incompatible with the polymeric matrix 130. The liquid

microelements may be formed from a variety of material. The liquid material has a preferred molecular weight when compared to the polymeric matrix which causes the liquid microelements to be uniformly disbursed in a microspherical shape throughout the polymeric matrix. The size of the embedded liquid microelements may be adjusted by varying a weight ratio of the liquid material for the embedded liquid microelements to the material for the polymeric matrix.

This type of liquid microelement is not taught or suggested in the primary reference. Instead, Miller teaches the various embodiments of a polishing method with associated pad using encapsulated polishing agents. The encapsulated polishing agents are not created nor used in the same manner as the liquid microelements described in claim 1 of the present invention. Thus, Applicant submits that Miller et al. is incapable of supporting the current rejection of any of the claims under Section 102 or Section 103.

In addition to the liquid microelements, the Examiner contends that Miller teaches a “liquid microelement containing mineral oil, which is chemically incompatible with polyurethane matrix, which [is] a hydrophilic matrix material” pointing to column 7, lines 9-15, 50-55; and column 8, line 63-65. It is respectfully submitted that the portion cited in Miller to support the Examiner’s conclusion is without merit.

As to column 7, lines 9-11, Miller describes micro-capsules as being capable of containing various contents which include, but are not limited to, a number of different materials. Instead, this portion of the reference merely shows a number of materials that may be contained within micro-capsules. Similarly, column 8, lines 63-65 merely recite that a polishing pad matrix material may be made of any suitable material, such as polyurethane. There is no suggestion or connection whatsoever between column 7, lines 9-11, 50-55 and column 8, lines 63-65 of the reference to suggest the conclusion set forth by the Examiner.

It appears that the Examiner is also contending that Miller teaches the subject matter of claim 14 which states that “wherein the content of the liquid material is 20-50 weight percent, **based on the total weight of the material for the polymeric matrix.**” The Examiner relies on the statement that “a desired payload of the micro-capsules is in the order of from 45-95 weight percent of the micro-capsule” to extrapolate that there is a relationship between the liquid material and the polymeric matrix. In fact, there is no relationship recited in the ‘266 patent between the material creating the polishing pad and the micro-capsules used with the polishing pad. These are completely independent aspects of the system disclosed in Miller.

Finally, the Examiner concludes that the polishing layer could not have been a semitransparent since the same materials are employed both in the disclosed application as well as Miller et al. There is nothing recited by the Examiner to support the asserted conclusion. The present application discusses a particular combination of materials that are used in order to create the polishing pad. Simply because one of the materials, in one form, is disclosed in the cited reference, does not necessarily mean that that same material is used in the same way with the same combination of materials to produce a semitransparent as described in the present application.

Claims 4-6 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Miller et al. as applied to claim 1, in view of James et al. (U.S. 6,069,080).

In particular, the Examiner relies upon James as teaching a polishing pad using a urethane matrix material that includes polyethylene glycol with a molecular weight of 200-10000 and present in an amount of 20-60% by weight of the matrix material. However, there is no suggestion that one of ordinary skill in the art would have combined James with Miller since James is totally unconcerned with the use of liquid microelements. The relationship between the material used to form the liquid microelements and the materials used to form the polishing pad

is critical to ensure a uniform and controlled distribution of the liquid microelements throughout the surface of the polishing pad. Neither Miller or James discuss this unique aspect of Applicants' claimed invention. Reconsideration of this rejection is thus respectfully requested.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. in view of Merchant et al. (U.S. 6,364,744). The Examiner relies upon Merchant as teaching a transparent support layer which has a seamless interface with the polishing layer. While not addressing all of the technical distinctions between the disclosed apparatus and Miller, one clear distinction is that Miller is unconcerned with the distribution of liquid microelements in a polishing pad. Thus, Merchant is incapable of curing the deficiencies with the primary reference. As such, the Examiner has failed to set forth a *prima facie* case of obviousness.

The Examiner further takes the position that it would have been obvious to one of ordinary skill in the art to make the polishing layer and the support layer integral. The Examiner concludes that one of ordinary skill in the art would be motivated by the expectation of preventing the accumulation of air bubbles in the interface region between the two layers citing the U.S. Supreme Court decision in Howard v. Detroit Stove Works, 150 US 164 (1893) (copy attached). First, the Examiner's reliance on Howard v. Detroit Stove Works is misplaced. There are numerous factual and technical distinctions between improvements in heating stoves and the formation of a polishing pad using embedded liquid microelements. It is respectfully submitted that the Howard decision is restricted to the facts of that case. Nor does the reasoning of the Supreme Court in examining how various sections of a stove are bolted, riveted together or cast should be extended to the substantially more technically advanced issue of how to create a polishing pad with liquid microelements on a support pad.

Claims 8 and 15 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Reinhardt. Examiner relies on Reinhardt as teaching a polymeric polishing pad

comprising hollow polymeric microelements embedded in the polymeric matrix and open pores defined by the hollow polymeric microelements that are distributed across the surface of the polishing layer as shown in Figure 3. With reference to Figure 3 of the cited reference and column 6, lines 24-33, Reinhardt discloses a polymeric polishing pad containing hollow polymeric microelements where the polymeric microelements contain various void spaces 22. Thus, the reference does not show hollow polymeric microelements embedded in the polymeric matrix; it instead shows void spaces 22 contained in **solid polymeric microelements**. Further, neither Figure 3 nor the reference suggest that any of the voids 22 would necessarily be exposed to form open pores as recited in claim 8 as the Examiner contends.

Reconsideration of this rejection is also respectfully requested.

Although the Applicant has addressed several functional and structural distinctions between the cited references and Applicants' claimed and described inventions, it does not mean that the Applicant has addressed each and every distinguishing feature between Applicants' invention as currently recited in claims 1-16 and the references, either alone or in combination.

### CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of claims 1-6 in connection with the present application is earnestly solicited.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) hereby petition(s) for a two (2) month extension of time for filing a reply to the outstanding Office Action and submit the required \$225 extension fee herewith.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By: 

Terry L. Clark, Reg. No. 32,644  
P.O. Box 8910  
Reston, Virginia 20195  
(703) 668-8000

TLC/dab